July 21, 1903, considered Lord Rosebery's letter, to which reference has already been made, and placed on record its opinion that, when certain conditions had been complied with, the Council would be well advised to contribute out of the money annually placed at its disposal under the Local Taxation (Customs and Excise) Act of 1890 a sum not exceeding 20,000*l.* per annum towards such part of the work described in Lord Rosebery's letter as fell within the statutory definition of technical education. Although the conditions are now entirely changed, there is no reason to suppose that the annual contribution of the Council to the college will be less than that suggested four years ago. The Board of Education will pay the fees for its selected scholars, and the fees payable by other students will amount to a considerable sum. It is expected that the resources of the Central Technical College will also be available. The total expenditure on this college for buildings, fittings, &c., has exceeded 130,000*l.*, and the current expenses of the college (about 15,000*l.* per annum) are met by the fees of students and a subvention from the City and Guilds of London Institute. The total value of the land, buildings, equipment, and capital available for the Imperial College (including the Central Technical College) will certainly exceed one million pounds.

The assets in the way of teaching staff and students also deserve mention. The teaching staff of the colleges includes such well-known men of science as Profs. Tilden, Callendar, Perry, Watts, Gowland, Cox, Ayrton, Armstrong, Dalby, and Henrici. At the Royal College of Science and the Royal School of Mines the total number of students is about 300; a high standard for entry is not at present demanded, and the proportion of students preparing for university degrees is comparatively small; but a large number of able students are entered at the college under the Board of Education system of national scholarships for science students. At the Central Technical College the number of regular students is about 375; the test for admission is approximately equivalent to London Matriculation, and a fairly large number of students are reading for London degrees as internal students of the University.

THE BUTTERFLIES OF INDIA.[1]

THE second volume of Colonel Bingham's important work on the butterflies of India includes the Papilionidæ and Pieridæ, and five out of the seven subfamilies into which the author divides the Lycænidæ, "provisionally . . . on the structural characters of the imago or perfect insect." These subfamilies are Gerydinæ, Lycæninæ, Curetinæ, Liphyrinæ, Poritinæ, Theiclinæ, and Arhopalinæ, of which the last two stand over until the next volume. The tables and descriptions are very carefully drawn up, and the illustrations, both coloured and uncoloured, the latter often representing venation, legs, and other important structural characters, are worthy of high praise. Some of the text-figures of large species are reduced. The transformations, broods, habits, flight, scent, stridulation, &c., of various butterflies are also fully discussed, especially the curious relationships between Lycænidæ and their larvæ and ants and aphides. We notice, however, that references to the transformations of common European species have generally been omitted; we are not certain whether this is done to save space (for it might have been thought hardly necessary to repeat information to be found in every European book on butterflies) or because Indian records of the transformations of these particular species happen to be wanting.

Notwithstanding the care with which the book is written, we notice an occasional oversight; for instance, the range of the genus Colias is incompletely given, as it is found in Lapland, South Africa, and other localities which would seem to be excluded by the wording of the paragraph. Perhaps the newest and most interesting observation in the book is that recorded by Colonel H. J. W. Barrow, R.A.M.C., who observed a Lycænide (*Allotinus horsfieldi*) "milking" an aphis in the same manner as if the butterfly had been an ant (p. 287, Fig. 73). The description of the tentacles of the larvæ of *Curetis bulis* (p. 445) is also quite original and very curious, as is also the long account of the carnivorous larva of the very anomalous *Liphyra*

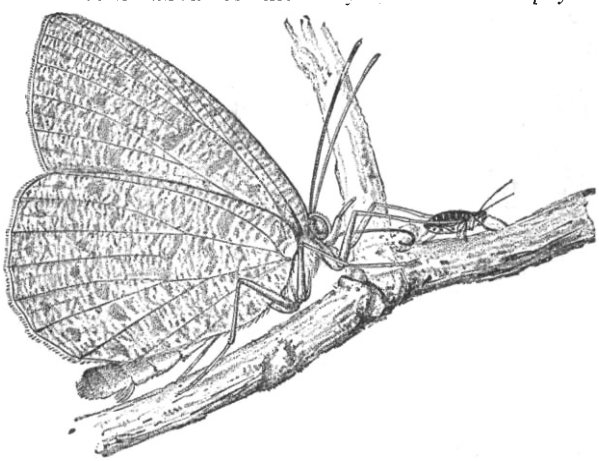


FIG. 1.—*Allotinus horsfieldi*, attending an Aphide. From "The Fauna British India. Butterflies, vol. ii."

brassolis (pp. 448–56), but the latter particulars have mostly been published before.

It will be seen that there is much in Colonel Bingham's volume which appeals to the general naturalist, and not merely to the lepidopterist.

W. F. K.

THE ROYAL SOCIETY CONVERSAZIONE.

THERE were numerous interesting exhibits at the Royal Society conversazione on May 8. The guests were received by the president, Lord Rayleigh, and included representatives of many departments of intellectual activity.

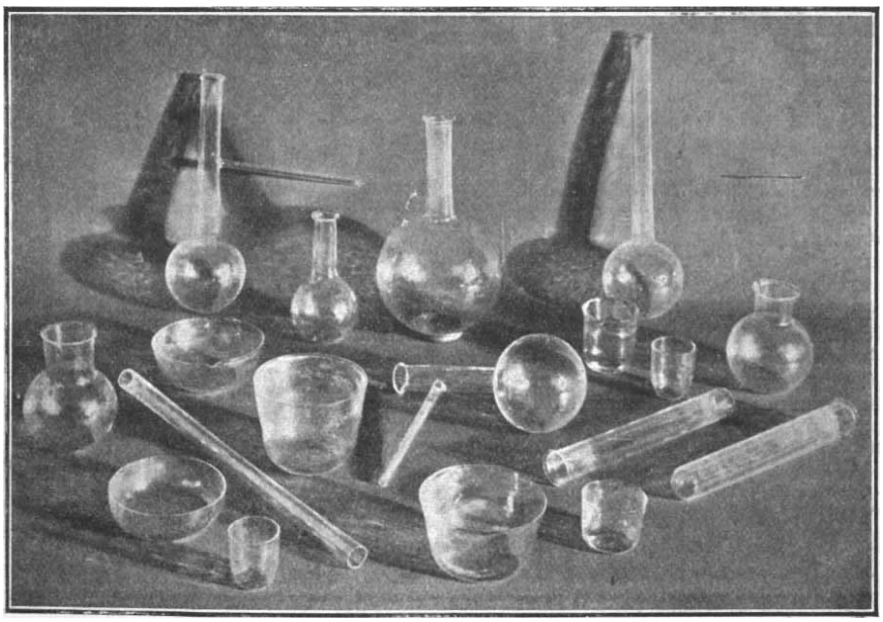
During the evening, demonstrations were given in the meeting-room of the Society by Mr. Louis Brennan, C.B., Dr. C. G. Seligmann, and Dr. Hele Shaw, F.R.S. Mr. Brennan explained the principle and action of his mono-railway by means of a working model. On his system each vehicle is provided with automatic stability mechanism which endows it with the power of maintaining its equilibrium upon a single rail laid upon the ground, either while standing still or travelling at any rate of speed, notwithstanding that the centre of gravity of the vehicle is above the rail, and that wind pressure, centrifugal force, or the movement of passengers or displacement of load may tend to upset it. This mechanism consists of two gyroscopes, revolving in opposite directions, and their precession, by being accelerated, produces a restoring couple at right angles to the rail. The same principle

[1] "The Fauna of British India, including Ceylon and Burma." Published under the Authority of the Secretary of State for India in Council. Edited by Lieut.-Colonel C. T. Bingham. Butterflies, vol. ii. By Lieut.-Colonel C. T. Bingham. Pp. viii+480; plates xi–xx. (London: Taylor and Francis, 1907.)

is applicable to motor-cars, flying-machines, and other structures.

Dr. C. G. Seligmann gave a kinematograph exhibition of native dances taken during the course of the Daniels ethnographical expedition to British New Guinea. The demonstration by Dr. Hele Shaw was on the subject of aërial gliding. During the last few years a large number of experiments have been made in connection with aëroplanes and machines for soaring and gliding. Dr. Shaw gave a brief account of the work of Lilienthal, the Wright Brothers, and others, and summarised the present state of our knowledge on the subject.

Two exhibits of particular interest were apparatus of pure iridium and rhodium and of fused silica by Messrs. Johnson, Matthey and Co., Ltd. This firm has succeeded in producing iridium and rhodium of such extreme purity as to render these hitherto practically unworkable metals so malleable as to enable their being used for the manufacture of such apparatus as basins, tubes, and flasks. These metals, having a very high melting point, and being almost unattacked by acids, should prove of great value in chemical research. The scientific work of which the process of manufacturing apparatus of fused silica is the outcome was carried out by two English men of science about ten years ago; unfortunately, as so often happens in these cases, its commercial importance was first recognised in Germany, and its production on an industrial scale commenced, little or nothing of a similar nature being attempted at home. Messrs. Johnson, Matthey and Co. have now taken up the original process, and by suitable modifications to meet industrial requirements are enabled to place this material upon the market at a price which can no longer be considered prohibitive. The apparatus is manufactured from the purest silica obtainable. At a high temperature this substance melts, and yields a viscid liquid which can by suitable means be fashioned into apparatus having all the appearance of ordinary glass, as is shown in the accompanying illustration. The apparatus possesses many properties which are likely to render it of great service both to science and to industry; *e.g.*, it can be made white hot and plunged into water, or otherwise rapidly cooled, without any danger of cracking; it is quite unattacked by water or acids, while ordinary glass under similar conditions is appreciably dissolved.



Transparent Silica Apparatus.

In the subjoined summary of the official catalogue of the exhibits, those on related subjects have, so far as possible, been grouped together.

Mr. H. R. A. Mallock, F.R.S.: Instrument for recording by photography rapid changes of pressure in the air, such, for example, as are caused by the wave produced by an explosion.—*The Director of the Meteorological Office:* Model of the neighbourhood of the winter quarters of the National Antarctic ship *Discovery*, 1902–4.—*Dr. W. J. S. Lockyer:* Cloud studies. The pictures exhibited represent some of the first results secured in attempting to photograph cloud forms during the past year. After some trials it was found that by the use of yellow screens (×10 for summer and ×5 for winter) and an ortho-process plate, sufficient contrast was obtained without undue length of exposure. No difficulty was experienced in photographing either heavy "cumulus" cloud or very elevated "cirrus."—*Solar Physics Observatory, South Kensington:* (1) Stellar spectrograms. (*a*) Bellatrix. (*b*) Rigel, (*c*) Sirius, (*d*) ε Ursæ Majoris, (*e*) Capella. (2) Spectroheliograms. Two series showing the development of the large spot of March (5–17), 1907. (3) Recent photographs of British stone circles, &c., in Cornwall.—*Commander Chetwynd, R.N.:* Improved liquid compass. In the compass exhibited the diameter of the card is considerably smaller than that of the bowl, the proportion being three-quarters, so that the edge of the card is substantially outside the influence of that ring of damping fluid which, on altering the ship's course (or whilst turning the compass bowl), adheres to and is drawn round by the inner surface of the bowl. The edge of the card being so far from the inner surface of the bowl on which the lubber's line is usually marked, a special lubber's mark or pointer is introduced projecting horizontally from the bowl on a level with the card. The extremity of this pointer, filed to a fine point and being in close proximity to the edge of the card, obviates all possibility of error of parallax in reading the course, without in any way causing a disturbance of the card.—*Mr. H. Cunynghame, C.B.:* A detached gravity escapement. The object of this escapement is to cause the impulse on the pendulum to be given by means of a light arm which falls by the action of gravity, and is hence independent of the force of the train, and to provide that the release of the train that winds up the arm is not derived from a blow by the pendulum, but of the arm itself.

Prof. W. E. Dalby: Working models, illustrating the balancing of a two-cylinder gas engine and a locomotive.—*Prof. A. G. Ashcroft:* Lecture table testing machine.—*Colonel R. E. Crompton, R.E.:* Crompton's measuring machine, combining accuracy with rapidity in working. With this measuring machine, which has been designed for observing length differences due to the heat treatment of specimens of steel, measurements of objects from 1 inch to 6 inches long, not differing among themselves more than a quarter of an inch, can be made and entered on the test sheet at the rate of one per minute. The accuracy obtainable is greater than 1 in 200,000.—*Mr. S. G. Brown:*

Relay working of long submarine telegraph cables. The apparatus consists of (1) an automatic transmitter, the movements of which are governed by means of a perforated tape, and originate the signals sent into an imitation cable; (2) a relay, receiving the signals at the other end of the line, and actuating an automatic perforator by which a duplicate of the originating type is reproduced at the relay station for re-transmission on another cable.—*Sir James Dewar, F.R.S.:* The Crookes radiometer—motion arrested in very high vacua, &c. (1) Experiments showing the cessation of radiometer action in very high vacua, made by charcoal cooled in liquid hydrogen or liquid air, even when the instrument is subjected to the concentrated radiation of an electric lamp. (2) Radiometer filled with helium at atmospheric pressure, which is inactive to a charcoal liquid-air vacuum, but becomes active in a charcoal liquid-hydrogen vacuum.—*Mr. W. Duddell, F.R.S.:* Persistent electric oscillations. The oscillations are produced by the method of the "musical arc." In this method a direct-current arc is shunted with a circuit consisting of a condenser and a self-induction in series. The frequency of the oscillations can be varied by altering either the capacity or the self-induction in the shunt circuit. The oscillograph records exhibited show the variations in the potential difference and current when the oscillations are produced. To obtain powerful oscillations at very high frequencies, the arc may be placed in hydrogen gas as employed by Paulsen. In the apparatus shown the arc burns in coal gas, and *no magnetic field* is used to blow out the arc. Experiments in magnetic induction, tuning, and discharge *in vacuo* are easily demonstrated with persistent high-frequency oscillations. The persistent oscillations are of special use for energising the transmitter in wireless telegraphy, as they permit better syntony or tuning to be obtained.—*Mr. W. A. Douglas Rudge:* The action of radium and other salts on gelatin culture medium. Radium, barium, strontium, and lead salts, when placed in contact with gelatin culture medium, give rise to a kind of cellular growth, which is due to the formation of an insoluble precipitate with the sulphuric acid usually present. Radium salt added to the medium from which the sulphuric acid has been removed causes no growth, but the addition of a soluble sulphate produces a growth at once. Analyses of the growths obtained with radium salts show that they are composed of barium sulphate.

Messrs. R. and J. Beck, Ltd.: (1) New diffraction wave-length spectroscope. This instrument comprises a Thorpe replica diffraction grating with a collimator and slit. The observing telescope swings on an axis which passes through the grating, parallel with the lines. The motion is by means of a micrometer screw which reads the sine of angle of rotation direct, thus giving on its divided milled head the wave-length in A.U. (2) The "isostigmar" photographic lens on optical testing bench.—*Mr. A. Kershaw:* A new visual method of measuring the speeds of photographic shutters.—*Mr. Ulrich Behn:* (1) The flame tube. A simple apparatus capable of indicating very small changes of air-pressure. It consists of a short metal tube with wide outlets, at which, after the tube is connected with the gas main, the gas is lighted. It shows, if one end is raised a few millimetres, the decrease of atmospheric pressure with height by the changes in size of the flames. The tube is capable of various applications. (2) Demonstration of the theory of microscopic images. (3) An indirect method of measuring the temperature of liquid-air baths. (4) A short glycerine barometer. This consists of an air thermometer of the old Italian type, the bulb of which is kept at zero by means of ice in a Dewar vessel.—*Dr. J. T. Bottomley, F.R.S., and Mr. F. A. King:* Experiments with vacuum gold-leaf electroscopes on the mechanical temperature effects in rarefied gases. The apparatus consists of a "radium clock" and various types of vacuum electroscopes. The vacuum electroscopes are set up to show the effects of radiations from sources of heat and light upon gold leaves hanging within highly exhausted enclosures. The gold leaves of the vacuum electroscope diverge when illumination of any kind falls upon them, and stand permanently apart when placed in bright daylight. By suitably manipulating such sources as a spirit flame, candle, or Nernst lamp near the electroscope, forces, which vary in direction and magnitude from point to point within the enclosure, are generated, and cause the leaves to be twisted into curious shapes. The gold leaves will remain in this contorted condition for a considerable time after the exciting cause has been removed.—*Dr. J. R. Milne:* A special camera for the purpose of automatically recording the readings of the scale of any instrument.—*Messrs. Pilkington and Gibbs, Ltd.:* A heliochronometer which gives Greenwich mean time by a simple direct solar observation. It comprises devices for adjustment in latitude, longitude, level, and azimuth, and is self-correcting for the equation of time.

The Cambridge Scientific Instrument Co.: (1) Prof. Féry's self-contained radiation pyrometer. The pyrometer utilises the heating effect of the "total radiation" from a hot body, focussed as an image of that body by means of a concave mirror. It differs from the already known Féry radiation pyrometer in being entirely self-contained, the image falling upon a minute bi-metallic flat spiral (Breguet spiral). This becomes partially uncoiled as its temperature rises, and a light pointer attached moves over a dial divided to give direct (centigrade) temperature readings. (2) Universal portable electrometer, designed by Mr. C. T. R. Wilson, F.R.S. A gold-leaf instrument with very small capacity and fused quartz insulation, suitable for work on atmospheric electricity, radio-activity, &c., and self-contained, with means for standardising the readings, which are very steady even in a fairly high wind.—*Mr. Joseph Goold:* Vibration experiments with steel plates and six bars tuned accurately to 400, 500, 504, 600, 700, and 800 vibrations per second.—*Dr. Otto Schlick, and Messrs. Swan, Hunter, and Wigham Richardson, Ltd.:* Working models illustrating the action of the Schlick gyroscope in steadying ships at sea (see NATURE, April 11, p. 561).—*Dr. Robert Knox and Mr. G. Pearce:* Skiagraphy of the human subject; examples illustrating the advantages of reduction in exposure. The instruments employed to produce skiagraphs, with exposures varying from one to seven seconds, consist of a powerful induction coil yielding a greatly intensified secondary current, worked in conjunction with an electrolytic interrupter directly from high-tension electric light mains. The core of the coil consists of transformer plates. The primary is of a much larger wire than usual, and has more turns. The secondary is smaller than usual. The X-ray tube is provided with a heavy anode to withstand the current. In series with the X-ray tube, a rectifier is placed to render the current unidirectional.

The Thermal Syndicate, Ltd., Wallsend-on-Tyne: Pure fused silica ware. The articles consist of pure silica, and are manufactured by an electric furnace process at a temperature of about 2000° C. The material is highly refractory, and possesses a very low coefficient of expansion (about 1/17th of that of glass), and in consequence it is able to resist sudden and extreme changes of temperature without cracking. It is unaffected by practically all acids, is an excellent electric insulator, and retains its insulating properties even at high temperatures. The specimens show that it is possible to produce a brilliant lustre on the surface of the material.—*Dr. F. D. Chattaway, F.R.S.:* Copper mirrors deposited upon glass from aqueous solution. In the mirrors exhibited, the copper had been deposited upon the glass by reducing cupric oxide by an aqueous solution of phenylhydrazine in presence of potassium hydroxide, which accelerates the action to a remarkable extent. The mirrors are equal in brilliancy and uniformity of surface to silver mirrors, and on account of the colour of the copper are much more beautiful.—*Hon. C. A. Parsons, F.R.S.:* Photographs of microscopic diamonds obtained from pure iron heated in a carbon crucible in an electric furnace and rapidly cooled. Scale, 150 diameters.—*Prof. J. Perry, F.R.S.:* British Association Album, meeting in South Africa, 1905. Two copies of an album prepared by Mr. Eustace Calland from photographs selected from those taken by members of the British Association.

Marine Biological Association of the United Kingdom: Marine algæ and their reproduction. A small representative collection of sea-weeds from the Plymouth district exhibited to illustrate their different habits of growth and reproduction.—*Prof. E. Ray Lankester, F.R.S.:* (1) Metamorphosis of the eel. Series of specimens showing the

transformation from the marine larva or Leptocephalus of the common eel into the fresh-water "elver" and young eel. Also a series showing the metamorphosis of the conger eel. (2) Specimens of Cephalodiscus. Specimens of *Cephalodiscus nigrescens* and *Cephalodiscus hodgsoni* obtained by the *Discovery* in the Antarctic Ocean, and *Cephalodiscus gilchristi* obtained by Dr. Gilchrist in the Cape Seas. Also the original Cephalodiscus (*Cephalodiscus dodecalophus*) obtained by the *Challenger* in the Straits of Magellan in 1876, for comparison with the above newly discovered species. (3) Coloured cast of the tile-fish. The tile-fish was first discovered in 1879 in about 100 fathoms in the North Atlantic, and was expected to become a regular marketable fish. In 1882 a vast destruction of the tile-fish took place, owing, it is supposed, to a chilling of the part of the sea which it inhabited, and millions of the dead fish were found floating on the surface of the ocean. It was feared that the fish had become extinct, but since 1892 specimens have been caught in fair numbers. This cast was prepared and coloured by the authorities of the National Museum at Washington. (4) Specimen of the okapi. The specimen is an immature male, obtained by Major Powell Cotton in the Ituri Forest, Congo State. The bony horns have not yet penetrated the skin as they do in adult animals. Special interest attaches to this individual, in that Major Powell Cotton was able to examine the recently killed body and determine the sex. The specimen has been presented by Major Powell Cotton to the Natural History Museum, which already possesses the complete skeleton of the same individual.

Dr. F. A. Dixey: Seasonal dimorphism in butterflies. It has recently been established, partly by observation, but mainly by the experiments of Mr. G. A. K. Marshall, that in many tropical and subtropical species of butterflies which produce two or more broods in the course of the year, the broods differ in appearance according to the season at which they emerge. In several of these cases the difference is so extreme that the seasonal phases of the same insect have received different specific names, and have even been considered to be widely separated from each other in the systematic series. In some instances it has been found possible to transform one seasonal phase into the other by artificial means. Similar phenomena have long been recognised in certain European Lepidoptera (butterflies and moths), but it is only lately that experimental proof has been obtained in the case of tropical forms such as those exhibited.—*Prof. E. B. Poulton, F.R.S.:* The female forms of the African *Papilio dardanus*, the most remarkable example of mimicry hitherto discovered. Mr. Roland Trimen, F.R.S., first showed (in 1870) that these diverse forms were the females of a single species with a non-mimetic male. His evidence was not confirmed by the final test of breeding until 1902, when Mr. G. F. Leigh, of Durban, bred a single family containing males and two of the female forms. After other partial successes Mr. Leigh succeeded, in the autumn of 1906, in breeding the single family exhibited. It was bred from a female of the second form, and contains fourteen males, and examples of all the female forms known in South-East Africa: eight of the first, three of the second, and three of the third.—*Colonel Bingham:* Pupa of *Binsitta barrowi*, Bingham, with photograph of moth and pupa, and a coloured drawing of the head of a tree-snake (*Lycodon aulicus*, Linn.). *Binsitta barrowi*, Bingh., is a rare moth belonging to the family Tineidæ, lately discovered by Colonel Waller-Barrow at Maymyo, a hill station near Mandalay, Upper Burma. Colonel Barrow found the moth just issuing from the chrysalis, and noticed at once the curious resemblance of the latter to the head of a snake. When the chrysalis is looked at from in front, the likeness to the head of *Lycodon aulicus*, Linn., a bird-eating snake, is at once perceived.—*Mr. Fred Enock:* Ovivorous parasitic Hymenoptera (Mymaridæ).—*Prof. Charles Stewart, F.R.S.:* Selected specimens from the Museum of the Royal College of Surgeons, England.—*Mr. H. St. J. Donisthorpe:* The inhabitants of British ants' nests.—*Mr. W. Woodland:* Microscopic preparations illustrating the development of the plate-and-anchor spicules from the soft tissues of *Synapta inhaerens* and *S. digitata*.—*Mr. H. B. Fantham:* Microscopic preparations of *Spirochaeta* (*Trypanosoma*) *balbianii* from the crystalline style and intestine of the oyster.—*Prof. A. Dendy:* (1) The "pineal eye" in the New Zealand lamprey (Geotria) and in the tuatara (Sphenodon). (2) Reissner's fibre in the brain and spinal cord of Geotria.—*Mr. R. I. Pocock:* Example of the skins of English domestic cats. English domestic cats, whatever their colour may be, and whether they belong to "Manx," "Persian," or "ordinary" breeds, are shown by their pattern of stripes to be referable to two distinct kinds, known as the "striped" and "blotched" tabbies. The striped tabby appears to be the scarcely modified descendant of the European and North African wild cats. The origin of the blotched tabby is unknown.

Mr. R. H. Biffen: Hybrids of wheat and barley.—*Prof. W. B. Bottomley:* Fixation of nitrogen by leguminous and other plants.—*The Director, Royal Botanic Gardens, Kew:* (1) *Welwitschia mirabilis*, Hook. f. (Gnetaceæ), south-west tropical Africa. (2) *Acanthosicyos horrida*, Welw. (Cucurbitaceæ), western tropical Africa. (3) Labrador lichens. A striking feature of the Labrador lichens is their similarity to those of northern Europe. *Platysma nivale, Cetraria islandica, Bryopogon jubatum*, and species of Stereocaulon so abundant in Norway and Sweden, flourish equally well in Labrador, whilst, just as in Lapland, *Cladonia rangiferina*, the "reindeer moss," covers vast areas. (4) Figures of remarkable new or rare plants (exhibited by Mr. W. Botting Hemsley, F.R.S.). (5) Figures of African terrestrial Utriculariæ (exhibited by Dr. Otto Stapf).

Prof. John Milne, F.R.S.: Records of recent large earthquakes. (1) Jamaica earthquake; (2) San Francisco earthquake; (3) the so-called Valparaiso seismogram (see NATURE, February 21, p. 403).—*Rev. R. Ashington Bullen:* Cable broken by the Jamaica earthquake of January 14, 1907. The cable had remained intact for twenty years. It rested on a muddy bottom in a depth of 700 fathoms, about seventeen miles south of Kingston. The probability is that here it crossed the line of a geological fault.—*The Director of the Imperial Institute:* (1) Igneous and metamorphic rocks of northern Nigeria. Typical specimens collected during the course of the mineral survey of northern Nigeria now in progress in connection with the Imperial Institute. (2) Tinstone from Bauchi, northern Nigeria, and tin smelted from it. (3) New or exceptional minerals from Ceylon. (4) New vegetable products of hitherto unknown composition.—*Mr. C. Carus-Wilson:* (1) Crystallised granite. A remarkably fine mass of Cornish granite in which the mineral constituents had crystallised out around the walls of a large cavity. (2) Musical flint nodule from the chalk near Faversham. The specimen is 21 inches long, and emits a loud metallic ring when struck at the thin end.

Mr. F. J. Lewis: The succession of plant remains in British peat mosses. All the Scottish and north of England peat mosses show a definite succession of plant remains. Detailed investigations have been carried on in twenty-four districts, from Westmorland to the Shetland Islands, and the geographical distribution of the successive strata ascertained. The evidence so far shows that two distinct arctic beds and two distinct forest beds occur in the peat, and these features are so regular and spread over so wide an area that the alternation must be due to climatic changes during early post-Glacial times.—*Mr. H. F. Standing:* Recently discovered sub-fossil Primates from Madagascar. The chief interest of these relates to the light which they throw on the origin of the extant Malagasy lemurs. They show these latter to be descended from ape-like ancestors, and that many of their so-called "lemuroid" characters have been secondarily acquired. Some of the recently discovered species are of gigantic size, showing evidence of various retrogressive changes, notably in the frontal region of the brain. One of these gigantic extinct Prosimiæ (Palæopropithecus) was probably aquatic. Its brain indicates certain affinities with the aye-aye, that curious aberrant rodent-like "lemur" from the Malagasy forests.—*The Director, British Museum (Natural History):* Mandible of Tetrabelodon from the Loup Fork formation (Lower Pliocene), Nebraska, U.S.A. This specimen shows that the primitive mastodons, with a long chin and lower tusks, reached North America before their final extinction.

(Exhibited by the Keeper of Geology.)—*Prof. H. G. Seeley, F.R.S.:* Skull of a South African saurischian (*Erythrosuchus africanus*). The remains were collected by Dr. R. Kannemeyer in 1897. They were displaced, and in unusual confusion. The matrix has been entirely removed by Mr. Richard Hall, of the British Museum, but portions are missing, so that the skull has not been reconstructed as yet. The whole skeleton indicates a new division of this order of animals.

Mr. W. Dale: A cordoned bucket or cist of bronze, "Halstatt" type, early Iron age of Europe, late Bronze age of Britain, *circa* 700 B.C., found at Weybridge, Surrey, April, 1907, at a depth of 10 feet, in sinking a shaft for the pier of a bridge close to the river at the new motor track. The bucket is of north Italian manufacture, and is similar to specimens found at Halstatt and in other parts of Europe as far as Hanover, but never before in Britain. It has quite recently been proved that some brooches, in museums and private hands, found in England, must have come from north Italy in the early Iron age of Europe. On the strength of this, it has been asserted that there was commerce between Europe and Britain as early as 700 B.C., and the theory is confirmed in a remarkable way by the discovery of this bucket. The British Museum Catalogue figures a Halstatt bucket (Fig. 30, "Guide to Early Iron Age") exactly similar. The workmanship of the handles is the same as that of the ancient torques.—*Mr. Rowland G. Hazard:* Arrow heads and spear points from North America, Egypt, and Japan.—*Sir Benjamin Stone, M.P.:* History pictures of Egypt. These views are a selection from the series of photographs taken by Sir Benjamin Stone during the recent winter season. The series of about 800 views shows the aspect of Egypt and the Soudan at the present time.

NOTES.

WE regret to learn that Dr. Alexander Buchan, F.R.S., the distinguished meteorologist, died on Monday, May 13, at seventy-eight years of age.

AT the Chemical Society on Thursday, June 13, Prof. J. B. Farmer, F.R.S., will deliver a discourse entitled "Some Borderline Problems in Botany."

M. LE CHATELIER has been elected a member of the Paris Academy of Sciences in succession to the late Prof. Moissan.

THERE will be a reception at the Linnean Society on June 7 in celebration of the 200th anniversary of the birth of Linnæus. The principal exhibits will be of objects associated with or belonging to Linnæus, such as letters, manuscripts, and objects of natural history.

PROF. E. RAY LANKESTER has left for the Continent with the view of studying the specimens of the okapi in the museum of the Congo Free State at Tervueren, near Brussels, and in other collections.

DR. J. HALM, assistant at the Royal Observatory, Edinburgh, has been appointed first assistant at the Cape Observatory, in succession to Mr. S. S. Hough, F.R.S., who was recently promoted to succeed Sir David Gill as H.M. Astronomer at the Cape.

THE fifteenth "James Forrest" lecture of the Institution of Civil Engineers will be delivered by Dr. Francis Elgar, F.R.S., on the evening of Tuesday, June 18, his subject being "Unsolved Problems in the Design and Propulsion of Ships." The fourth engineering conference will be held on June 19–21, commencing each day at 10 a.m., and the annual conversazione on the evening of June 20 at the Royal Albert Hall.

WE are informed that Prof. H. F. Osborn has returned to New York from Egypt, where he accompanied and superintended an expedition to search for remains of the fossil vertebrates of the Fayum for the museum he represents. He took with him a staff of trained collectors, who have been left in Egypt for some time longer to continue the work of collecting. As the result of such expert collecting, a number of remains of the smaller mammals have, we believe, been obtained, which should prove of great interest.

AN interesting undertaking is that of a party now at Seattle on the way to study seismic and volcanic conditions in the Aleutian Islands. One of the fifty-nine volcanoes in these islands was reported active last March. The expedition is headed by Prof. T. A. Jaggar, of the Massachusetts Institute of Technology, and includes Prof. H. V. Gommere, of the University of California, and Dr. Van Dyke, of San Francisco.

ON May 11 the Lowell Astronomical Expedition to the Andes sailed from New York. Its main object will be the observation of Mars in July. The site for the observations will be selected next month, probably either in the high Andes of Peru or in the desert regions of northern Chili. The work is in charge of Prof. David Todd, director of the Amherst College Observatory, Mass., who will be accompanied by Mrs. Todd. Mr. E. C. Slipher, also of Amherst, will be responsible for the photographic side of the expedition, and Mr. Albert G. Ilse, of the firm of Alvan Clark and Sons, of Cambridge, Mass., will be chief mechanician and instrument maker. The appointments of the *personnel* of the expedition have been made by Prof. Percival Lowell, who is himself working at present at Flagstaff, Arizona.

THE Cardiff public telescope and observatory are proving a decided success. During the last few weeks, in response to an appeal from Mr. Albert Taylor, a large number of teachers in the locality have applied for permission to use the instrument. The attendance of the general public also has been such as quite to warrant the corporation in the expense to which it went in connection with the observatory.

ON Thursday next, May 23, Sir James Dewar will commence a course of three lectures at the Royal Institution on "Chemical Progress—Work of Berthelot, Mendeléeff, and Moissan." The Friday evening discourse on May 24 will be delivered by Prof. J. A. Fleming, on "Recent Contributions to Electric Wave Telegraphy," and on May 31 by Mr. A. H. Savage Landor, on "Recent Journey Across Africa."

THE Gypsy Lore Society, which was first formed in 1888, and has lain dormant since 1892, is to be revived under the presidency of Mr. David MacRitchie. On July 1 next it is proposed to issue the first number of a new series of the society's quarterly journal, the publication of which ceased with the termination of the activities of the association in 1892. The society aims at enrolling every amateur of gypsy philology, folk-lore, and ethnology, and every student of Sanskrit and Indian languages. The society will be conducted on a purely honorary basis—neither writers nor officers being paid. Interested persons should communicate with the hon. sec., Mr. R. A. Scott Macfie, 6 Hope Place, Liverpool.

THE annual report of the Ray Society, read at the annual general meeting on May 9, stated (*inter alia*) that part iii. of the "British Annelids," by Prof. W. C. McIntosh, F.R.S., is now in the press, and will be issued for the present year, and that there is a sufficient number of monographs waiting their turn for two volumes per